REMARKS

Upon entry of this amendment, claims 19-22, 30, 32, 33, 42, 43, 48-51 and 55-67 are all the claims pending in the application. Claims 1-5, 8-13, 35, 36, 40 and 52-54 have been canceled by this amendment, and claims 55-67 have been added as new claims. No new matter has been added.

I. Claim Rejections under 35 U.S.C. § 101

Claims 1-5, 8-13, 19-22, 30, 32, 33, 42, 43 and 48-54 have been rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Regarding claims 1-5, 8-13, 35, 36, 40 and 52-54, as noted above, these claims have been canceled by this amendment.

Regarding claims 19-22 and 48-51, Applicants note that each of these claims has been amended so as to be drawn to a "computing device" including a "processor" and a "compiler apparatus". Thus, as each of the above-noted claims includes at least a "processor", Applicants respectfully submit that such claims are clearly drawn to statutory subject matter under 35 U.S.C. 101. Accordingly, Applicants kindly request that the above-noted rejection be reconsidered and withdrawn.

II. Claim Rejections under 35 U.S.C. § 102

Claims 30, 32, 33, 42 and 43 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Stallman ("Using and Porting the GNU Compiler Collection for GCC 3.1").

Regarding claim 30, Applicants note that this claim recites that the directive acquisition

unit acquires a directive for alignment of array data of a specific type together with a directive for translating the source program, wherein the optimization unit allocates all the array data of the specific type declared in the source program in the memory region so that its head address matches the alignment. Applicants respectfully submit that Stallman does not disclose or suggest such features.

In particular, Applicants note that while Stallman discloses an optimization for an individual array data (see section 5.33 of Stallman beginning on page 177), that Stallman does not disclose or in any way suggest that an optimization unit allocates all the array data of the specific type declared in the source program in the memory region so that its head address matches the alignment, as recited in claim 30.

In view of the foregoing, Applicants respectfully submit that Stallman does not disclose, suggest or otherwise render obvious all of the features recited in claim 30. Accordingly, Applicants submit that claim 30 is patentable over Stallman, an indication of which is kindly requested.

Regarding claim 32, Applicants note that this claim recites that the directive acquisition unit detects a designation of alignment of data that a pointer variable of argument shown by the name of a specific variable indicates in the source program, wherein the optimization unit performs the optimization assuming that the data that is an object of designation detected by the directive acquisition unit is allocated in the memory region by the designated alignment. Applicants respectfully submit that Stallman does not disclose or suggest such features.

In the Office Action, the Examiner has indicated that Stallman discloses the above-noted features at page 182, lines 16-20. Applicants respectfully disagree.

In particular, Applicants note that the section of Stallman cited by the Examiner merely indicates that "[i]f you declare or use arrays of variables of an efficiently-aligned type, then it is likely that your program will also be doing pointer arithmetic."

Thus, while Stallman discloses the use of "pointer arithmetic" in conjunction with arrays of variables of an efficiently-aligned type, Applicants respectfully submit that such disclosure in no way whatsoever suggests the detection of a designation of alignment of data that a pointer variable of argument shown by the name of a specific variable indicates in the source program, as recited in claim 32.

Applicants note that a pragma is a directive that a user can arbitrarily designate in the source program and can specify not all loops or variables, but an individual loop or variable, whereby optimization can be performed only for the data that is an object of the directive designated by the user. With respect to claim 32, Applicants note that in Stallman, a pragma related to the alignment of data indicated by a pointer variable is not disclosed or in any way suggested.

In view of the foregoing, Applicants submit that claim 32 is patentable over the cited prior art, an indication of which is kindly requested. Claim 42 depends from claim 32 and is therefore considered patentable at least by virtue of its dependency.

Regarding claim 33, Applicants note that this claim recites that the directive acquisition unit detects a designation of alignment of data that a local pointer variable shown by the name of a specific variable indicates in the source program, and wherein the optimization unit performs the optimization assuming that the data that is an object of designation detected by the directive acquisition unit is allocated in the memory region by the designated alignment.

For at least similar reasons as discussed above with respect to claim 32, Applicants respectfully submit that Stallman does not disclose, suggest or otherwise render obvious such features. Accordingly, Applicants submit that claim 33 is patentable over the cited prior art, an indication of which is kindly requested. Claim 43 depends from claim 33 and is therefore considered patentable at least by virtue of its dependency.

III. Claim Rejections under 35 U.S.C. § 103(a)

A. Claims 1-5 and 36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stallman ("Using and Porting the GNU Compiler Collection for GCC 3.1") in view of Nakamura ("Architecture and Compiler Co-Optimization for High Performance Computing"), and Popovic ("A C Compiler Design Concept Used for MAS Family of Digital Signal Processors").

Regarding this rejection, as noted above, claims 1-5 and 36 have been canceled by this amendment.

B. Claims 8 and 52 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stallman in view of Sun (Sun Workshop Compiler c. 4.2 document: C user's guide).

Regarding this rejection, as noted above, claims 8 and 52 have been canceled by this amendment.

C. Claims 9, 10, 53 and 54 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stallman in view of Sun, and further in view of Granston (US 2002/0112228).

Regarding this rejection, as noted above, claims 9, 10, 53 and 54 have been canceled by this amendment.

D. Claims 11-13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stallman in view of Sun, and further in view of Granston (US 2002/0112228) and Granston (US 6,892,380).

Regarding this rejection, as noted above, claims 11-13 have been canceled by this amendment.

E. Claims 19-22 and 48-51 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stallman in view of PGI (PGI Workstation User's Guide-9 Optimization Directive and Pragmas), and further in view of Geva (US 6,539,541).

Regarding claims 19 and 48, Applicants note that each of these claims recites that the optimization unit restrains generation of an escape code that is needed in the case of the number of iterations being 0 when the minimum number is 1 or more.

In the Office Action, the Examiner has recognized that Stallman and PGI do not teach or suggest the above-noted feature. The Examiner, however, has applied Geva and has taken the position this reference discloses such a feature at col. 10, lines 9-10 (see Office Action at page 25). In this regard, however, Applicants note that on page 6 of the Office Action, the Examiner appears to admit that Geva does not disclose such a feature, but that such a feature would have been obvious to provide "more flexible optimization choices".

In view of the above-noted contradictory positions taken by the Examiner with respect to claims 19 and 48, Applicants kindly request clarification so that Applicants may make an informed decision with regard to appeal.

To the extent that the Examiner is taking the position that Geva discloses the above-noted feature, Applicants note that col. 10, lines 9-10 of Geva indicates that when the unrolled loop is a counted loop, that there is no need to test for the exit condition inside the unrolled body. In other words, in Geva, because a counted loop is a loop in which the number of iterations that the loop will execute is determined once execution reaches the loop, it is not necessary to test for the exit condition inside the unrolled body.

Based on the foregoing, Applicants note that while Geva discloses that when a loop is a counted loop, it is not necessary to text for the exit condition inside the rolled body, that this disclosure does not in any way suggest that an optimization unit restrains generation of an escape code that is needed in the case of the number of iterations being 0 when the minimum number is 1 or more.

Further, to the extent that the Examiner is taking the position that it would have been obvious to somehow modify the prior art so as to provide the above-noted feature, Applicants submit that the Examiner's position that it would have been obvious to provide such a feature in order to provide "more flexible optimization choices" is not a clear articulation of the reason why one of ordinary skill in the art would have modified the cited prior art so as to provide the above-noted feature.

In this regard, as explained in MPEP 2143, in view of the decision in *KSR International v Teleflex Inc.*, there must be a "clear articulation of the reason(s) why the claimed invention

would have been obvious" (emphasis added). Further, MPEP 2143 also indicates that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" (emphasis added).

In the present case, Applicants submit that the above-noted statement by the Examiner indicating that it would have been obvious to modify the prior art in order to provide "more flexible optimization choices" is not a clear articulation of the reason why one of ordinary skill in the art would have modified the prior art so as to provide the particular features discussed above in claims 19 and 48, and is not an articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Accordingly, Applicants submit that claims 19 and 48 are patentable over the cited prior art, an indication of which is kindly requested.

Regarding claims 20 and 49, Applicants note that each of these claims recites that the optimization unit performs the optimization by loop unrolling when the minimum number is equivalent to or more than the number of development by the loop unrolling.

In the Office Action, the Examiner has recognized that Stallman and PGI do not teach or suggest the above-noted feature. The Examiner, however, has applied Geva and has taken the position this reference discloses such a feature at col. 10, lines 6-9 (see Office Action at pages 25-26). In this regard, however, Applicants note that on page 6 of the Office Action, the Examiner appears to admit that Geva does not disclose such a feature, but that such a feature would have been obvious to provide "more flexible optimization choices".

In view of the above-noted contradictory positions taken by the Examiner with respect to claims 20 and 49, Applicants kindly request clarification so that Applicants may make an informed decision with regard to appeal.

To the extent that the Examiner is taking the position that Geva discloses the above-noted feature, Applicants note that col. 10, lines 6-9 of Geva discloses that one type of optimization may be loop unrolling where a loop is unrolled "n" times, such that "n-1" additional copies of the loop body are made.

Based on the foregoing, Applicants note that while Geva discloses that a loop may be unrolled "n" times such that "n-1" additional copies of the loop body are made, that such disclosure does not in any way suggest that optimization by loop unrolling is performed when the minimum number is equivalent to or more than the number of development by the loop unrolling, as recited in claims 20 and 49.

Further, to the extent that the Examiner is taking the position that it would have been obvious to somehow modify the prior art so as to provide the above-noted feature, Applicants submit that the Examiner's position that it would have been obvious to provide such a feature in order to provide "more flexible optimization choices" is not a clear articulation of the reason why one of ordinary skill in the art would have modified the cited prior art so as to provide the above-noted feature.

In this regard, as explained in MPEP 2143, in view of the decision in *KSR International v Teleflex Inc.*, there must be a "clear articulation of the reason(s) why the claimed invention would have been obvious" (emphasis added). Further, MPEP 2143 also indicates that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be

some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" (emphasis added).

In the present case, Applicants submit that the above-noted statement by the Examiner indicating that it would have been obvious to modify the prior art in order to provide "more flexible optimization choices" is not a clear articulation of the reason why one of ordinary skill in the art would have modified the prior art so as to provide the particular features discussed above in claims 20 and 49, and is not an articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Accordingly, Applicants submit that claims 20 and 49 are patentable over the cited prior art, an indication of which is kindly requested.

Regarding claims 21 and 50, Applicants note that each of these claims recites that the designation of the number of iterations guarantees that the loop processing is iterated only an even number of times.

In the Office Action, the Examiner has recognized that the cited prior art references do not disclose such a feature (see Office Action at page 18). The Examiner, however, has indicated that based on the disclosure in Geva which indicates that the number of iterations can be read from an input file, that it would have been obvious to specify the number of iterations in order to ensure that the number of iterations can be determined at compile time (see Office Action at page 25). Applicants respectfully disagree.

Initially, Applicants point out to the Examiner that Geva indicates that the inability of the compiler to determine the number of iterations can be due to the number of iterations being read by a program from an input file.

Further, with respect to the Examiner's position that it would have been obvious to specify the number of iterations, Applicants note that the mere ability to specify the number of iterations does not render obvious the above-noted feature which indicates that the designation of the number of iterations guarantees that the loop processing is iterated only an even number of times.

In other words, even if it would have been obvious to designate the specific number of iterations, Applicants note that this does not mean that it would have been obvious to designate the number of iterations so as to guarantee that the loop processing is iterated only an even number of times, as recited in claims 12 and 50.

In view of the foregoing, Applicants respectfully submit that the cited prior art references do not teach, suggest or otherwise render obvious the above-noted feature recited in claims 21 and 50. Accordingly, Applicants submit that claims 21 and 50 are patentable over the cited prior art, an indication of which is kindly requested.

Regarding claims 22 and 51, Applicants note that each of these claims recites that the designation of the number of iterations guarantees that the loop processing is iterated only an odd number of times.

For at least similar reasons as discussed above with respect to claims 21 and 50, Applicants submit that the cited prior art references do not teach, suggest or otherwise render obvious such a feature. Accordingly, Applicants submit that claims 22 and 51 are patentable over the cited prior art, an indication of which is kindly requested.

F. Claims 35 and 40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable Stallman.

Regarding this rejection, as noted above, claims 35 and 40 have been canceled by this amendment, thereby rendering this rejection moot.

IV. New Claims

Claims 55-67 have been added as new claims. Applicants note that claims 55-67 generally correspond to claims 19-22, 30, 32, 33, 42, 43 and 48-51, except that claims 55-67 are directed to a computer-readable recording medium having a compiler stored thereon for causing a computer to translate a source program into a machine language program.

Based on the foregoing, Applicants respectfully submit that claims 55-67 are patentable over the cited prior art for at least similar reasons as discussed above with respect to claims 19-22, 30, 32, 33, 42, 43 and 48-51.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Hajime OGAWA et al.

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